WebObjects and J2EE

Session 605

WebObjects and J2EE

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Sr. Software Engineers

Presentation Road Map

- Overview: what's new?
- Introducing the J2EE components
- J2EE development with WO Tools
- WebObjects J2EE integration in WO 5.2.2

Overview: What's New?

- Runtime Support for J2EE 1.3
- Graphical J2EE Deployment Tool
- Graphical J2EE Monitoring and Configuration Tool
- Admin Plugin to control container lifecycle
- ANT project types for pure J2EE development
- XDoclet integration
- Xcode support for J2EE and ANT
- Improved WebObjects J2EE integration

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J2EE and WebObjects: Why?

- Customer requests for J2EE support
- Helps you sell your WO applications

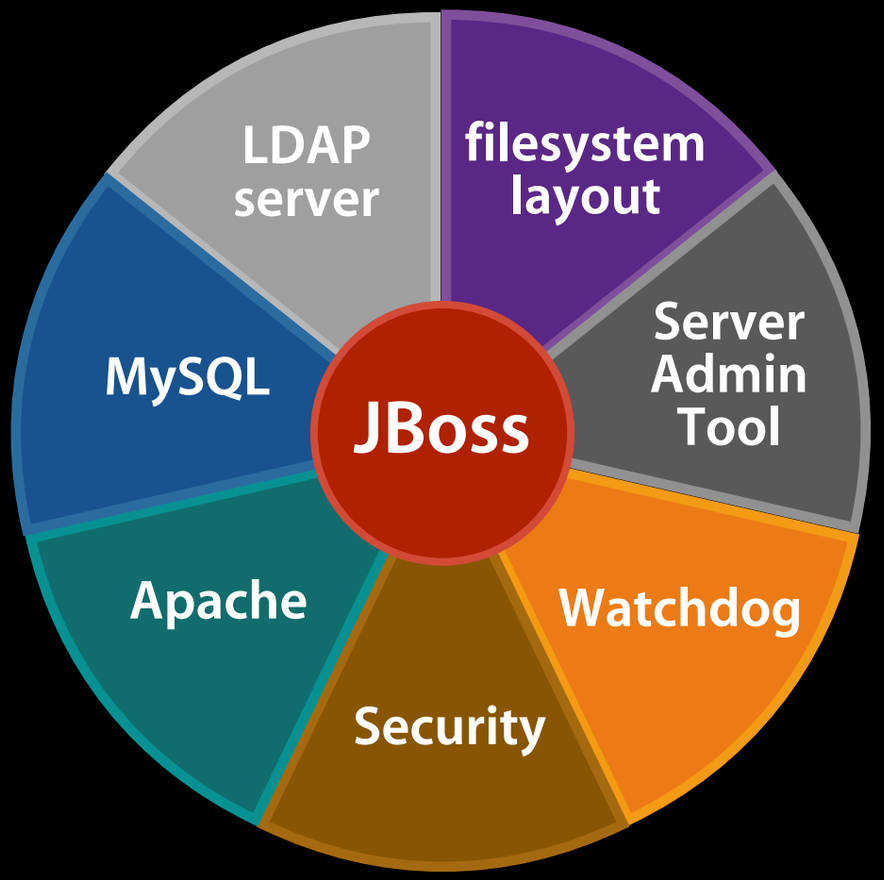
J2EE Container: JBoss

- "THE" open source J2EE container
- Large developer and user community
- Implements J2EE 1.3, but not certified
- Apple engineers are active contributors
- Installed on Mac OS X Server 10.3 and DevTools

Apple's JBoss Customizations

- Three standard configurations: develop, deploy, deploy-cluster
- Optimized for performance and spec compliance
- Takes full advantage of JDK 1.4

Apple's JBoss Customizations (Cont.)



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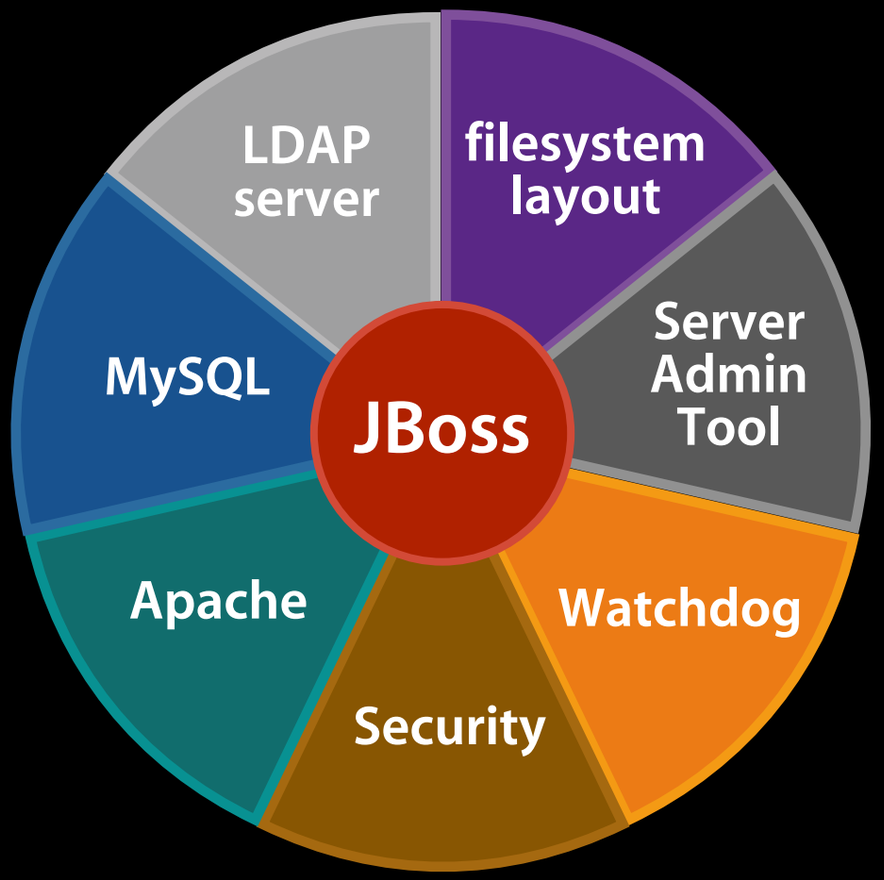

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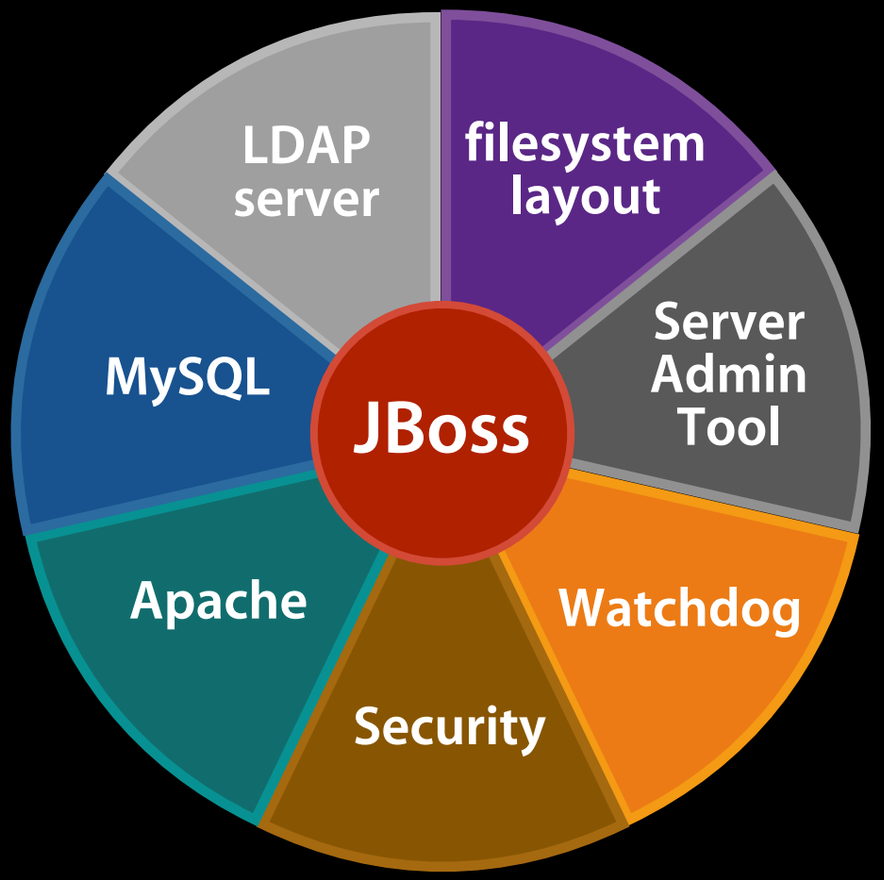

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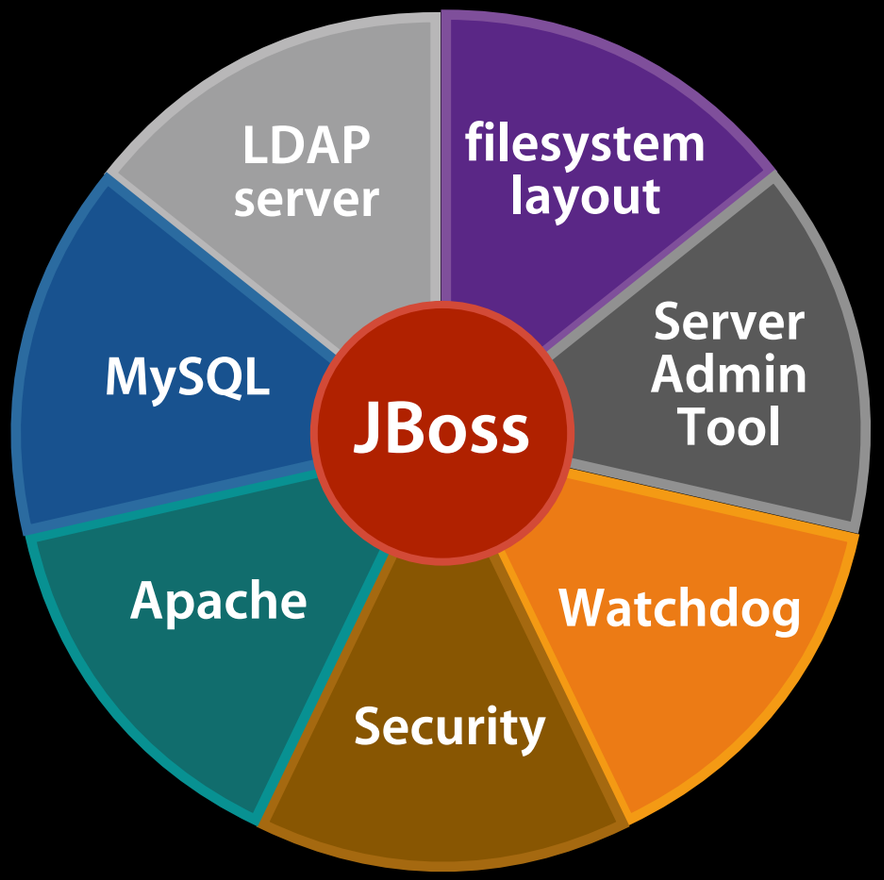

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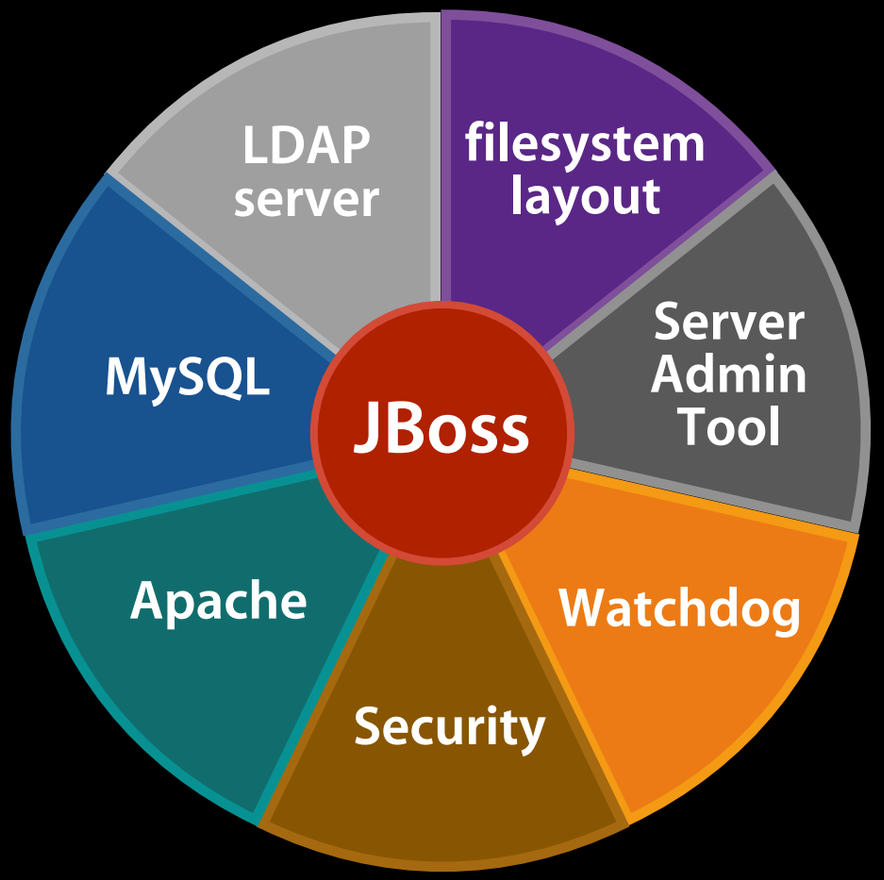

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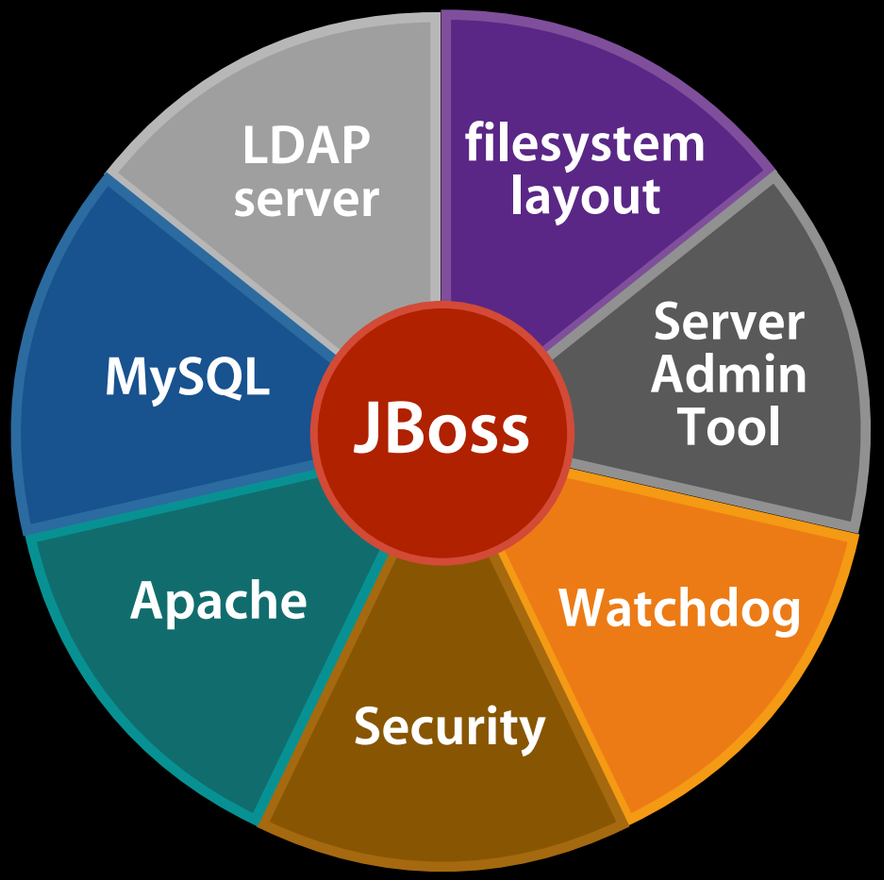

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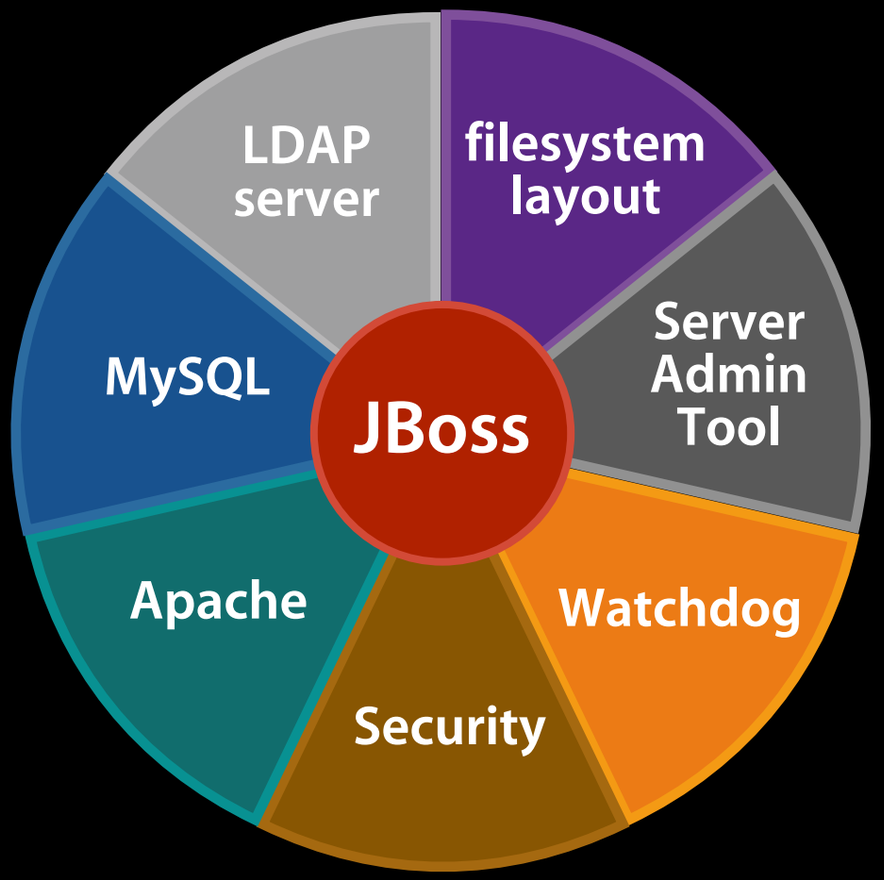
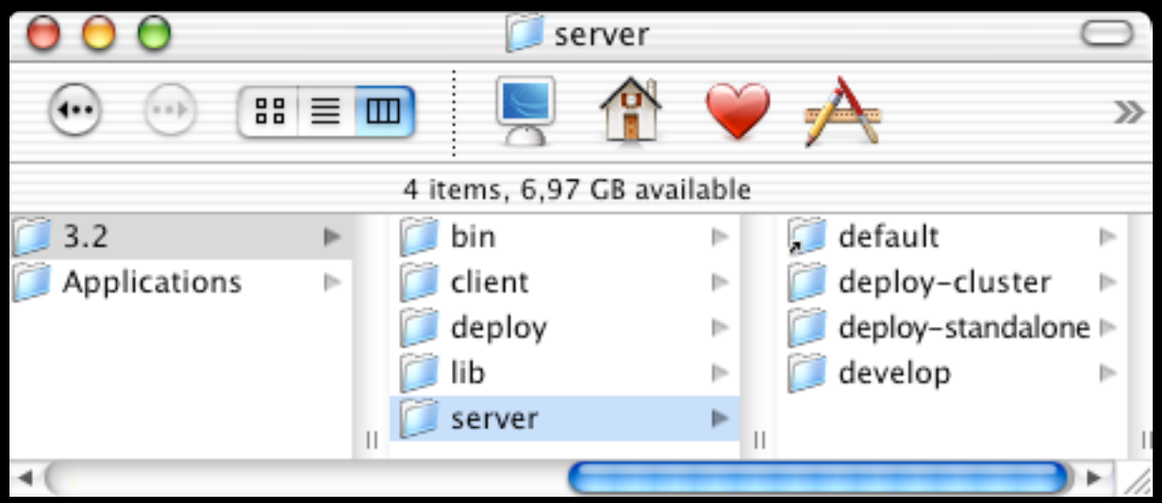


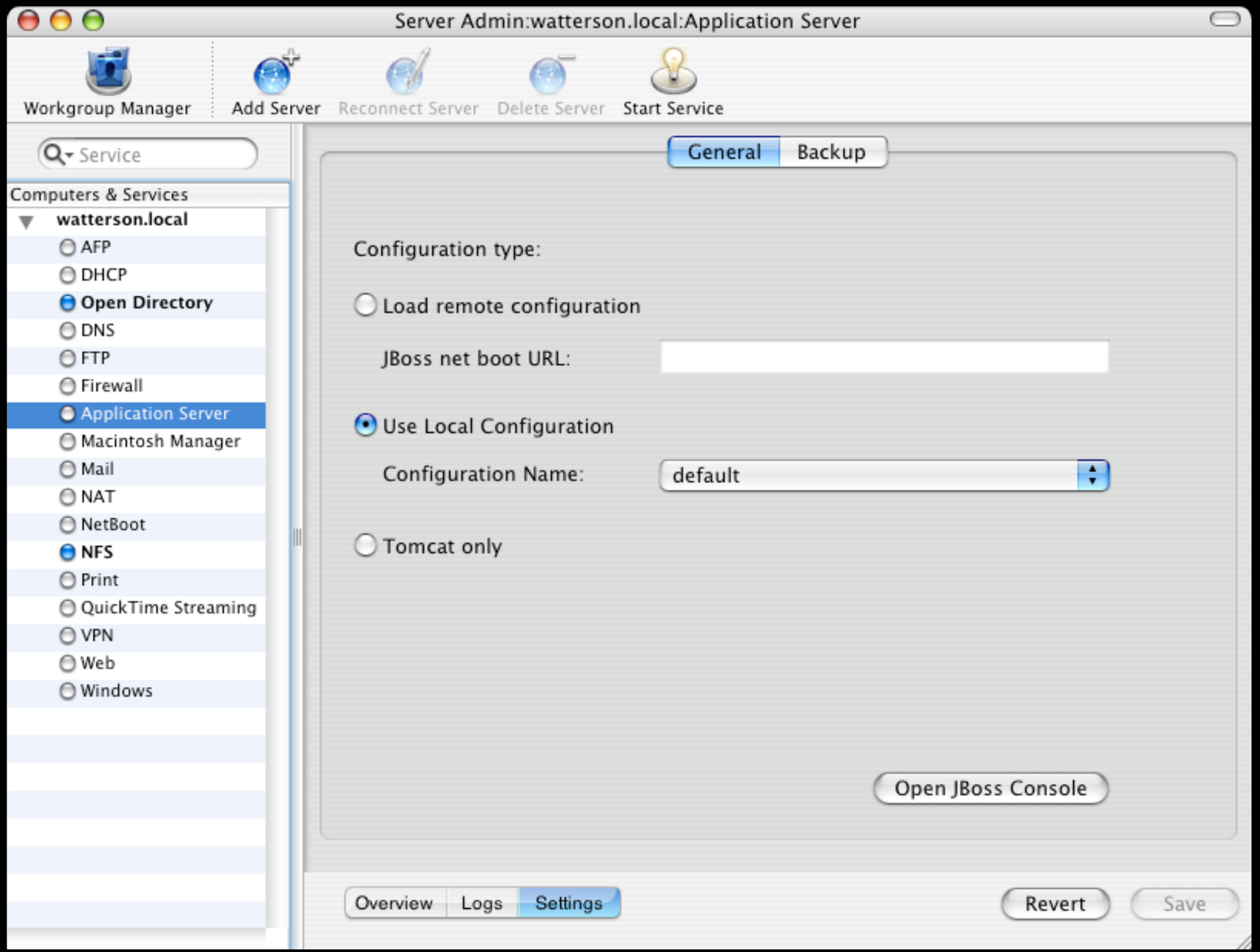
Using JBoss

- Installed in /Library/JBoss/3.2
- Start with Server Admin or from command line
- sudo/Library/JBoss/3.2/bin/run.sh
- Deploy apps in /Library/JBoss/3.2/deploy



Server Admin Plugin

Screenshot

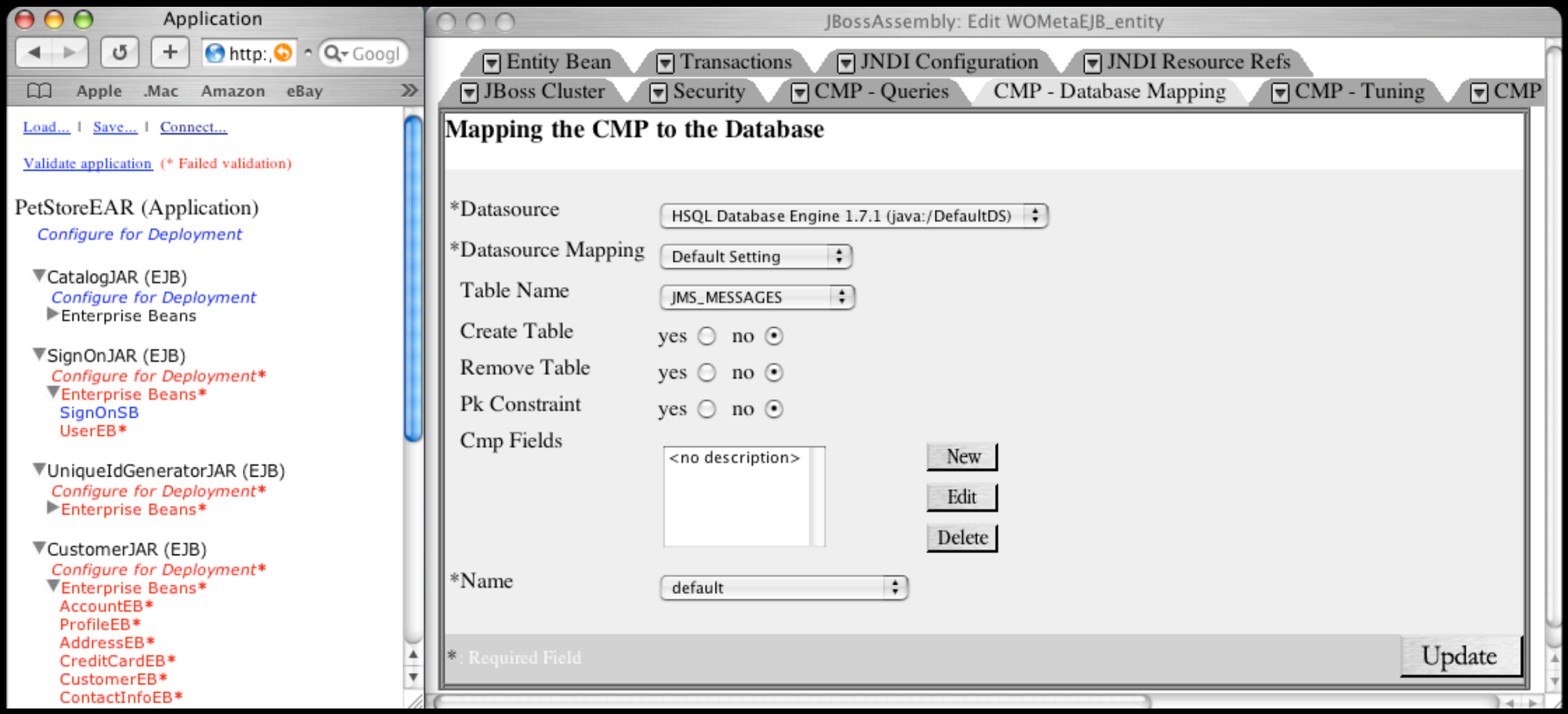


Deployment Tool

- Helps migrating J2EE apps to JBoss
- Creates JBoss-specific deployment files
- Automatic discovery of container resources
- Assisted CMP to JDBC mapping
- Allows full and express configuration
- Verifies that configuration is complete
- Deploys to (remote) container

Deployment Tool

Screenshot

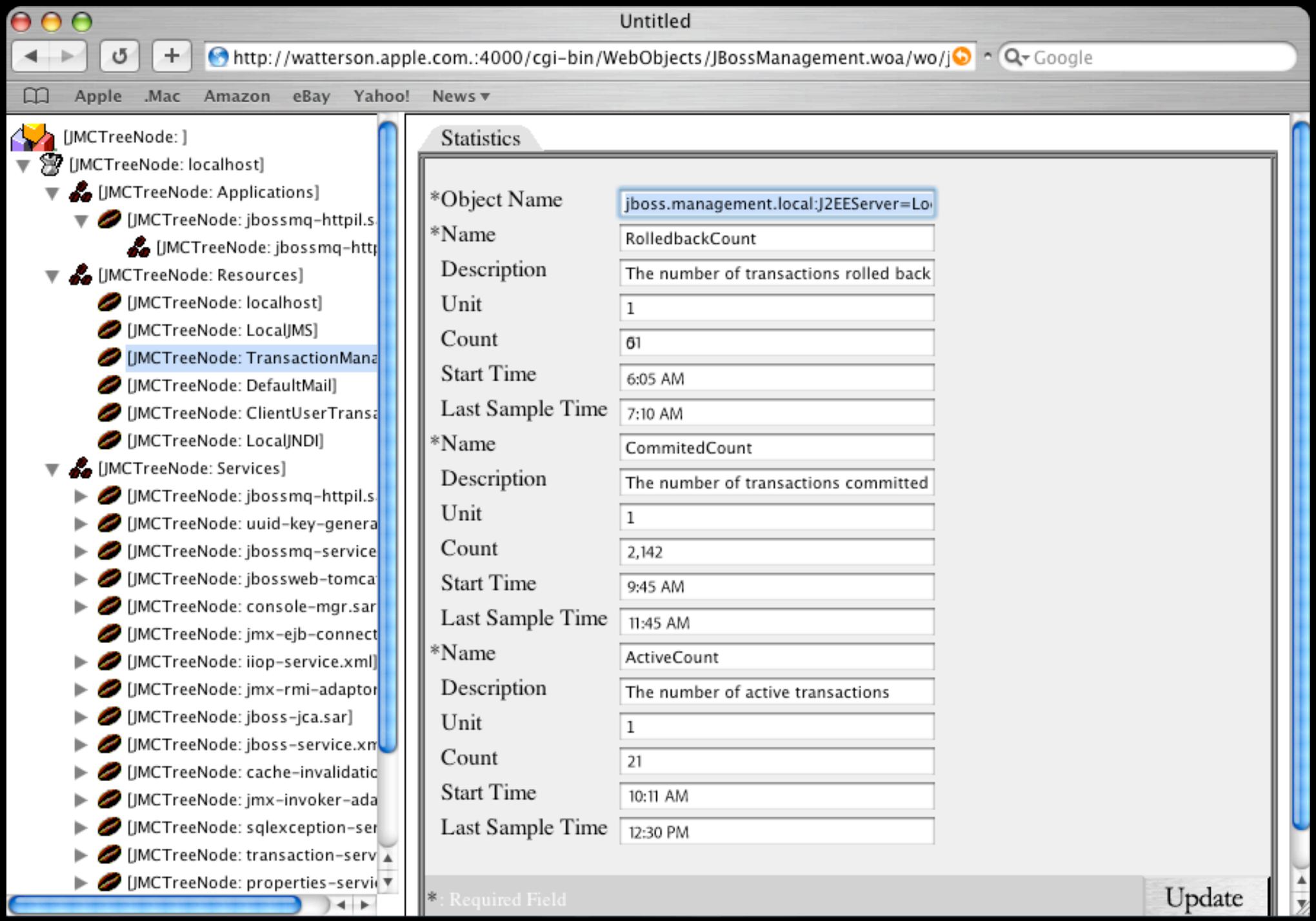


J2EE Container Management

- JSR-77 monitoring support
- JBoss-specific service configuration/monitoring
- Graphical Container customization
- More details in Session 612

Management Tool

Screenshot



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Development Tools

- Xcode: IDE with file and project templates
- ANT/XDoclet: build system w/Metadata processor
- EOModeler: Database Modeling Tool
- EOBeanAssistant: Entity Bean Generation

Ant Integration with Xcode

- Why?

Ant Integration with Xcode

- Ant builds J2EE projects
- XDoclet manages boilerplate files, XML files
- Project templates
  - File wizards
- Automatic deployment
  - /Library/JBoss/3.2/deploy
  - ftp to another machine*

Other Details

- /Developer/Java/J2EE
- Shipped with examples
  - xpetstore, open source PetStore
  - Others

Ant

- Java/XML based build tool
- Similar to Make
- Multi-platform
- Standard XML editing
- De facto standard

Ant Scripts

- build.xml, build.properties
- webbuild.xml
- ejbbuild.xml
- Customizable

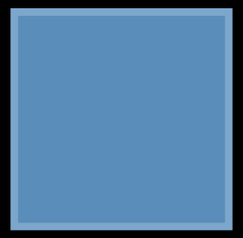
XDoclet

- Code generation engine
- Special Javadoc tags
- <webdoclet> and <ejbdoclet>

```
/**
* @ejb.bean=...
*
@ejb.persistence=.
..
*  ...
*/
public class ...
```

OrderEJB.java

XDoclet task



OrderLocal.java

OrderLocalHome.java

OrderRemote.java

OrderRemoteHome.java

XML files

OrderPK.java

Web Module Project

- Create Web Module project
- Customize
- Create servlets
- Observe servlet file naming convention
- Add static resources
- Compile and deploy

EJB Module Project

- Create EJB Module project
- Customize
- Create EJBs
- Observe EJB file naming convention
- Add static resources
- Compile and deploy

Enterprise Application

- Combination of Web and EJB Modules
- Create Servlets/EJBs
- Add static resources
  - OtherJARs
- Compile and deploy

Demo

xpetstore

EOModeler and Entity Beans

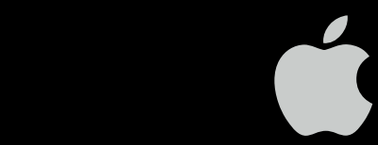
- Build data models
- Reverse engineer models from existing data sources
- Map relational data structures to Java objects
- Create schema in database
- Browse database

Announcing EOBeanAssistant V2

- Creates EJB 2.0 Entity Beans from EOModel
- Integrates with new ANT projects
- Supports both BMP and CMP Entity Beans
- Maps relationships in CMP 2.0
- Uses XDoclet to create dependent files
- Uses XDoclet to create JBoss deployment info
- Commandline version for automated builds

J2EE Development with WO Tools

- EOModeler to reverse or forward engineer database schema
- EOBeanAssistant to generate Entity Beans
- Xcode Templates for Session and MDB
- Xcode for build support
- WO or JSP for Web Interface
- J2EE container for deployment



Demo

Entity Bean Generation

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WebObjects J2EE Integration

- Servlet Adaptor
- Jar Bundles
- Log4j Logging
- JNDI Properties configuration
- JNDI Datasource mapping

Advantages of J2EE Deployment

- WO App can make use of all servlet features:
  - Filters
  - EJB
  - JDBC, JCA, JMS
  - Transactions
- Integrated in J2EE:
  - Security
  - Logging
  - Lifecycle management

Example: Accessing an EJB

```
InitialContext ctx = new InitialContext();
Object o = ctx.lookup(”java:comp/env/ejb/ABean”);
o = PortableRemoteObject.narrow(o,
BeanHome.class);
BeanHome home = (BeanHome) o;
Bean bean = home.create();
// bean.businessmethod();
// similar: JDBC, JCA, JMS resources
```

Example: JNDI Properties

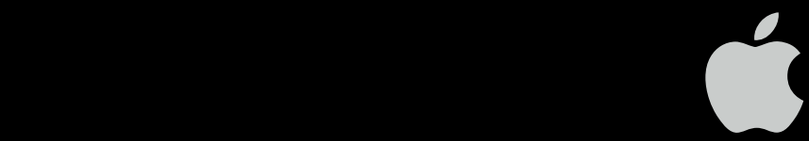
- In your web.xml:

```
  <env-entry>
    <description>enables or disables component
caching (not page caching)</description>
    <env-entry-name>wo/WOCachingEnabled</env-
entry-name>
    <env-entry-value>true</env-entry-value>
    <env-entry-type>java.lang.Boolean</env-
entry-type>
  </env-entry>
```

Example: JNDI Datasource

- In your web.xml:

```
<resource-ref>
  <res-ref-name>jdbc/DefaultDataSource</res-ref-name>
  <res-type>javax.sql.DataSource</res-type>
  <res-auth>CONTAINER</res-auth>
</resource-ref>
<env-entry>
  <env-entry-name>wo/dsmapping/MoviesDB</env-entry-name>
  <env-entry-value>java:comp/env/jdbc/
DefaultDataSource</env-entry-value>
  <env-entry-type>java.lang.String</env-entry-type>
</env-entry>
```



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- Summary

Summary

- J2EE can greatly benefit WO Apps
- WebObjects can greatly benefit J2EE Apps
- Mac OS X is the best platform to develop and deploy JBoss

Roadmap

612 Enterprise Application Deployment	Russian Hill Wed, 2:00pm
614 WebObjects Reusable Components	Russian Hill Wed, 3:30pm
616 WebObjects EOF—Advanced Topics	Russian Hill Wed, 5:00pm
624 WebObjects—Creating Web Services	Nob Hill Fri, 3:30pm

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(800) 630 2775

http://developer.apple.com/wwdc2003/urls.html

For More Information

Reference Library

Resources

Product Information

http://www.apple.com/webobjects

Developer Support

http://developer.apple.com/webobjects

Enterprise-Level WebObjects Support And Consulting

http://www.apple.com/services/technicalsupport

http://www.apple.com/services/consulting

Mailing List

WebObjects Announcements

webobjects-announce@apple.com

Reference Library

Documentation

JBoss Project
http://sourceforge.net/projects/jboss/

Tomcat
http://jakarta.apache.org/tomcat

Ant/XDoclet
http://ant.apache.org
http://xdoclet.org

Q&A

Stefan Reich, Han Ming Ong
Sr. Software Engineers

http://developer.apple.com/wwdc2003/urls.html

WWDC 2003

Worldwide Developers Conference